

Claims

What is claimed is:

1. A Brassica juncea plant tolerant to a level of herbicide that prevents or inhibits the growth of a wild-type Brassica juncea plant.
2. The plant of Claim 1 wherein the herbicide is an imidazolinone herbicide.
3. The plant of Claim 1 wherein the herbicide is a sulfonyl urea herbicide.
4. The plant of Claim 1 wherein the herbicide tolerance is developed by non-transgenic means.
5. The plant of Claim 4 wherein the non-transgenic means is mutagenesis.
6. Pollen of the plant of Claim 1.
7. An ovule of the plant of Claim 1.
8. A tissue culture of the plant of Claim 1.
9. A progeny plant derived from the plant of Claim 1.
10. A progeny plant derived from the plant of Claim 1, wherein the progeny plant retains substantially all of the herbicide tolerance of the plant of Claim 1.
11. A progeny plant derived from the plant of Claim 1, wherein the progeny plant contains one or more transgenes.
12. A Brassica juncea seed that, when planted, will produce a Brassica juncea plant tolerant to a level of herbicide that prevents or inhibits the growth of a wild-type Brassica juncea plant.
13. The seed of claim 12 wherein the herbicide is an imidazolinone herbicide.
14. The seed of Claim 12 wherein the herbicide is a sulfonyl urea herbicide.
15. The seed of Claim 12 wherein the herbicide tolerance is developed by non-transgenic means.
16. A Brassica juncea plant material tolerant to a level of herbicide which prevents or inhibits the growth of wild-type Brassica juncea plant material.
17. The plant material of Claim 16 wherein the herbicide is an imidazolinone

herbicide.

18. The plant material of Claim 16 wherein the herbicide is a sulfonyl urea herbicide.

19. The plant material of Claim 16 wherein the herbicide tolerance is developed by non-transgenic means.

20. The plant material of Claim 16 wherein the plant material is a full grown plant or its parts.

21. The plant material of Claim 16 wherein the plant material is an immature plant or its parts.

22. The plant material of Claim 16 wherein the plant material is a seed or its parts.

23. The plant material of Claim 22 wherein the seed or its parts are mature.

24. The plant material of Claim 22 wherein the seed or its parts are immature.

25. An herbicide tolerant Brassica juncea line designated 98SJ-23841, representative seed of the line having been deposited under ATCC accession No. PTA-1406.

26. A Brassica juncea plant or its parts produced by the seed of Claim 25.

27. Pollen of the plant of Claim 26.

28. An ovule of the plant of Claim 26.

29. A tissue culture of the plant of Claim 26.

30. A method for producing a Brassica line 98SJ-23841-derived Brassica plant, comprising:

(a) crossing Brassica line 98SJ-23841 with a second Brassica plant to yield progeny Brassica seed; and

- (b) growing said progeny Brassica seed to yield the Brassica line 98SJ-23841-derived Brassica plant.
- 31. A Brassica plant, or parts thereof, produced by the method of Claim 30.
- 32. The method of Claim 30, further comprising:
 - (a) crossing the Brassica line 98SJ-23841-derived Brassica plant of (b) or (d) with itself or another Brassica plant to yield additional Brassica line 98SJ-23841-derived progeny Brassica seed;
 - (b) growing the progeny Brassica seed of step (c) to yield an additional Brassica line 98SJ-23841-derived Brassica plant; and
 - (c) repeating the crossing and growing steps of (c) and (d) from 0 to 5 times to produce further Brassica line 98SJ-23841-derived Brassica plants.
- 33. A Brassica plant, or parts thereof, produced by the method of Claim 32.
- 34. The plant or plant parts of Claim 33, wherein the plant or plant parts retain substantially all of the herbicide tolerance of Brassica line 98SJ-23841.
- 35. The plant or plant parts of Claim 34, wherein the herbicide tolerance retained by the plant or plant parts is imidazolinone tolerance.
- 36. The plant or plant parts of Claim 33, wherein the plant or plant parts contain one or more transgenes.
- 37. An herbicide tolerant Brassica juncea line designated 98SJ-23844, representative seed of the line having been deposited under ATCC accession No. PTA-1407.
- 38. A Brassica juncea plant or its parts produced by the seed of Claim 37.
- 39. Pollen of the plant of Claim 38.
- 40. An ovule of the plant of Claim 38.
- 41. A tissue culture of the plant of Claim 38.
- 42. A method for producing a Brassica line 98SJ-23844-derived Brassica

plant, comprising:

- (a) crossing Brassica line 98SJ-23844 with a second Brassica plant to yield progeny Brassica seed; and
 - (b) growing said progeny Brassica seed to yield the Brassica line 98SJ-23844 -derived Brassica plant
- 43. A Brassica plant, or parts thereof, produced by the method of Claim 42.
- 44. The method of Claim 42, further comprising:
 - (a) crossing the Brassica line 98SJ-23844-derived Brassica plant of (b) or (d) with itself or another Brassica plant to yield additional Brassica line 98SJ-23844-derived progeny Brassica seed;
 - (b) growing the progeny Brassica seed of step (c) to yield an additional Brassica line 98SJ-23844-derived Brassica plant; and
 - (c) repeating the crossing and growing steps of (c) and (d) from 0 to 5 times to produce further Brassica line 98SJ-23844-derived Brassica plants.
- 45. A Brassica plant, or parts thereof, produced by the method of Claim 44.
- 46. The plant or plant parts of Claim 45, wherein the plant or plant parts retain substantially all of the herbicide tolerance of Brassica line 98SJ-23844.
- 47. The plant or plant parts of Claim 46, wherein the herbicide tolerance retained by the plant or plant parts is imidazolinone tolerance.
- 48. The plant or plant parts of Claim 45, wherein the plant or plant parts contain one or more transgenes.
- 49. A herbicide tolerant Brassica juncea line designated 98SJ-23845, representative seed of the line having been deposited under ATCC accession No. PTA-1408.
- 50. A Brassica juncea plant or its parts produced by the seed of Claim 49.
- 51. Pollen of the plant of Claim 50.

52. An ovule of the plant of Claim 50.
53. A tissue culture of the plant of Claim 50.
54. A method for producing a Brassica line 98SJ-23845-derived Brassica plant, comprising:
- (a) crossing Brassica line 98SJ-23845 with a second Brassica plant to yield progeny Brassica seed; and
 - (b) growing said progeny Brassica seed to yield the Brassica line 98SJ-23845 -derived Brassica plant.
55. A Brassica plant, or parts thereof, produced by the method of Claim 54.
56. The method of Claim 54, further comprising:
- (a) crossing the Brassica line 98SJ-23845-derived Brassica plant of (b) or (d) with itself or another Brassica plant to yield additional Brassica line 98SJ-23845-derived progeny Brassica seed;
 - (b) growing the progeny Brassica seed of step (c) to yield an additional Brassica line 98SJ-23845-derived Brassica plants; and
 - (c) repeating the crossing and growing steps of (c) and (d) from 0 to 5 times to produce further Brassica line 98SJ-23845-derived Brassica plants.
57. A Brassica plant, or parts thereof, produced by the method of Claim 56.
58. The plant or plant parts of Claim 57, where the plant or plant parts retain substantially all of the herbicide tolerance of Brassica line 98SJ-23845.
59. The plant or plant parts of Claim 58, wherein the herbicide tolerance retained by the plant or the plant parts is imidazolinone tolerance.

60. The plant or plant parts of Claim 57, wherein the plant or plant parts contain one or more transgenes.
61. A method of producing herbicide tolerance in *Brassica juncea* which comprises:
- (a) hybridizing an herbicide tolerant *Brassica napus* plant and a *Brassica juncea* plant to produce hybrid plant material, and
 - (b) selecting hybrid plant material that retains the morphological or genotypic characteristics of *Brassica juncea* and is tolerant to a level of herbicide which prevents or inhibits the growth of a wild-type *Brassica juncea* plant
62. The method of claim 61 wherein the herbicide is an imidazolinone herbicide.
63. The method of claim 61 wherein the herbicide is a sulfonyl urea herbicide.
64. The method of claim 61 wherein the *Brassica juncea* is the female in the hybridization.
65. The method of claim 61 wherein the *Brassica juncea* is the male in the hybridization.
66. The method of claim 61 wherein the herbicide tolerance of the *Brassica napus* plant is not developed through transgenic means.
67. The method of claim 61 wherein the hybrid plant material is a full grown plant or its parts.
68. The method of claim 61 wherein the hybrid plant material is an immature plant or its parts.
69. The method of claim 61 wherein the hybrid plant material is a seed or its parts.

70. The method of claim 61 wherein the hybrid plant material is an immature seed or its parts.

71. A method for controlling weeds growing with Brassica juncea which comprises:

- (a) growing the plants of claim 2, and
- (b) using an imidazolinone herbicide to control weeds.

72. A method for controlling weeds growing with Brassica juncea which comprises:

- (a) growing the plants of claim 3, and
- (b) using a sulfonyl urea herbicide to control weeds.

73. A Brassica juncea plant tolerant to a level of herbicide that prevents or inhibits the growth of a wild-type Brassica juncea plant, the herbicide tolerant Brassica juncea plant developed by crossing a herbicide tolerant Brassica napus plant with a Brassica juncea plant.

74. The plant of Claim 73 wherein the herbicide is an imidazolinone herbicide.

75. The plant of Claim 73 wherein the herbicide is a sulfonyl urea herbicide.

76. The plant of claim 73, wherein the herbicide tolerant Brassica napus plant was developed by non-transgenic means.

77. The plant of claim 76 wherein the non-transgenic means is mutagenesis.

78. A method of transferring a mutagenic trait into Brassica juncea, which comprises:

- (a) developing a mutagenic trait in a plant of a first species other than Brassica juncea;
- (b) crossing the plant of the first species containing the mutagenic trait with a Brassica juncea plant to yield Brassica juncea derived seed containing the mutagenic trait;
- (c) growing the Brassica juncea derived seed of Step (b) to yield Brassica

- juncea derived plants; and
 - (d) backcrossing the Brassica juncea derived plants with a Brassica juncea plant and repeating the backcross from 0 to 7 times to generate stable progeny plants with a Brassica juncea phenotype and the mutagenic trait of the plant of the first species.
79. The plant produced by the method of Claim 78.